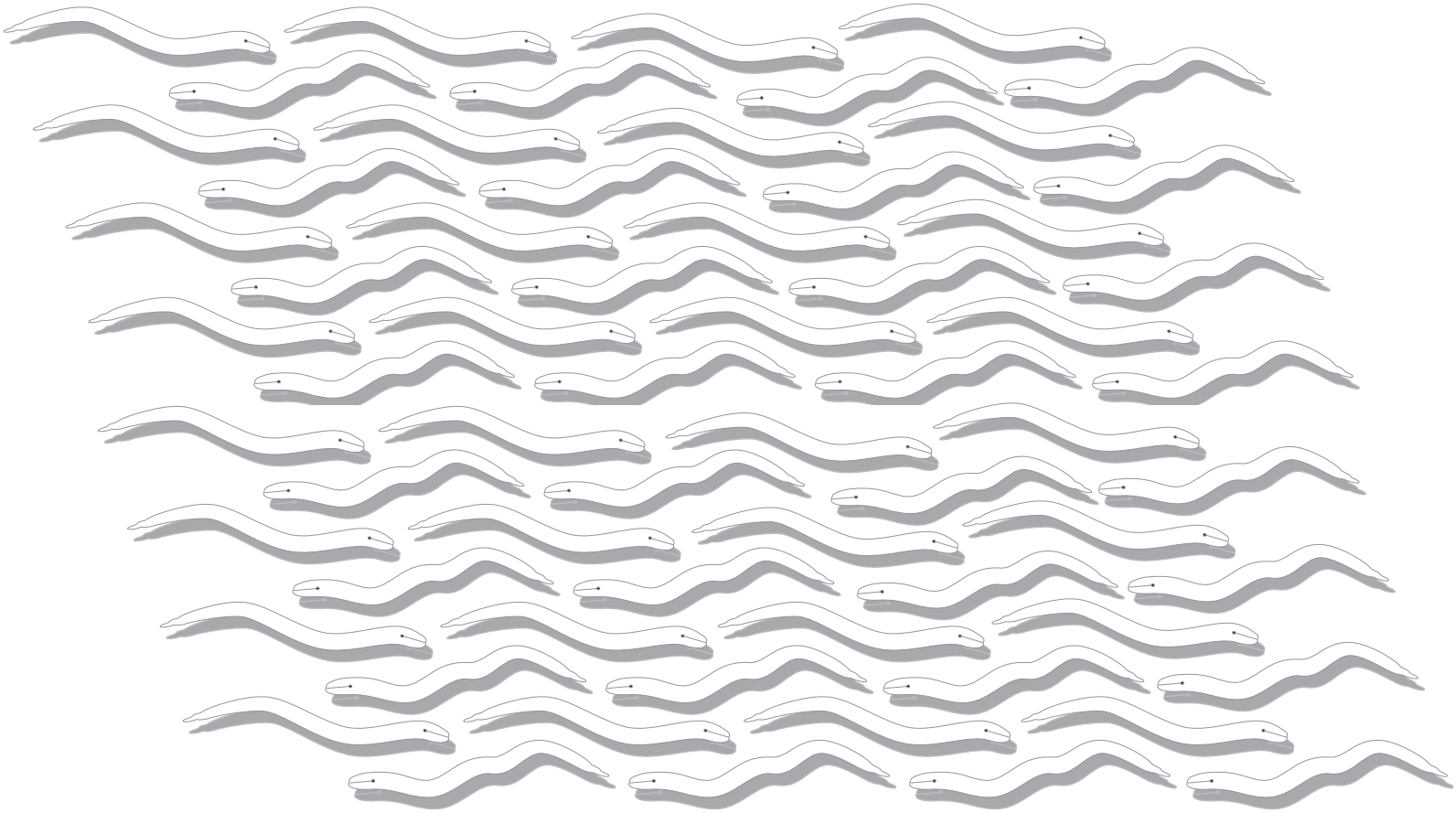
Bulletin 1172 January 2009

Nematode Management Investigations in Mississippi, 2005



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Nematode Management Investigations in Mississippi, 2005

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Appreciation is expressed to Chris Pace, Brian Andrus, and Katie Conley for their assistance in conducting these experiments. For more information, contact Gary W. Lawrence by telephone at (662) 325-2988 or by e-mail at glawrence@entomology.msstate.edu. This bulletin was published by the Office of Agricultural Communications, a unit of the Division of Agriculture, Forestry, and Veterinary Medicine at Mississippi State University.

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Nematode Management Investigations in Mississippi, 2005

INTRODUCTION

This summary of 2005 nematode trials on cotton and soybeans was prepared for industry cooperators, colleagues at other universities, and other interested persons. The information presented is not an endorsement or recommendation. This information is intended for private use and may not be reproduced without permission.

Trade names are used throughout this report for clarity, except where they are unavailable. A list of all chemicals used in this research — including trade, common, and chemical names when available — and company sources are included in the Appendix. Nematicide rates are expressed as formulated rate per acre as suggested by manufacturers.

Data presented in this report were statistically analyzed using the Statistical Analysis System (SAS Institute Inc., Cary, North Carolina). Data were subjected to ANOVA appropriate for the experimental design used, and means were separated using the least significant difference test. All statistical tests were performed at the 5% level of significance.

Single-Rate Applications. Temik 15G was applied at planting in the seed furrow with a Case 900 Early Riser planter equipped with a granular chemical applicator.

Telone II was applied with a modified ripper-hipper. A carbon-dioxide-charged system was used to propel the fumigant through flow regulators mounted on stainless steel delivery tubes attached to the trailing edge of forward-swept chisels. Rows were immediately hipped with disk-hillers to seal and prevent rapid loss of the fumigant.

Gaucho was added to the seed before planting by Gustafson at their recommended rates.

Vydate C-LV was applied as a foliar spray at the 6th true leaf stage and again 14 days later or other specified dates. Vydate C-LV was applied with a CO_2-charged backpack field plot spray system using two 8003 flat fan nozzles spaced over each row at 30 psi.

Nematode Counts. For most tests, population densities of plant-parasitic nematodes were determined at planting and at monthly intervals for the entire growing season. Ten soil cores, 1 inch in diameter and 8 inches deep, were collected from the two center rows of each plot in a systematic randomized sampling pattern. Cores from each plot were thoroughly mixed, and a 250-cubic-centimeter subsample was collected. Nematodes were extracted using a combination of gravity sieving and centrifugal flotation (sucrose sp. gr. 1.13).

Reniform Nematode Management with Temik 15G alone and in Combination with Gaucho Grande Seed Treatment

Objective: Temik 15G and a combination of Temik 15G plus Gaucho Grande were examined in Glen Allan, Mississippi, for the management of the reniform nematode (*Rotylenchulus reniformis*) in an established cotton production system.

Temik 15G was applied at planting in the seed furrow or as a side-dress treatment to plants that were in the 10th true leaf growth stage. In-furrow Temik 15G was applied at 5 pounds per acre. The side-dress treatment was 5 pounds per acre in combination with a 5 pounds per acre in-furrow rate applied at planting. The Gaucho Grande seed treatment was applied to the seed by Bayer CropScience.

Temik 15G in-furrow treatments were applied with a Case 900 Early Riser planter equipped with granular chemical applicators. Side-dress applications were placed approximately 6 inches deep on each side of the row with rolling coulters.

All plots were treated with Orthene 75S at 4 ounces of formulated product per acre when thrips were detected in any plots.

Cultivar: DP 555 BGRR

Experimental design: Randomized complete block with five replications.

Plot design: Two-row plots; rows 40 feet long, 38 inches wide; blocks separated by a 20-foot alley.

Application date:

April 28, 2005	Temik 15G applied in-furrow
May 11, 2005	Orthene 75S applied to all treatments
June 27, 2005	Temik 15G side-dress treatment

Planting date: April 28, 2005

Seed rate: 200 seeds per row

Nematode sample date:
April 28, 2005
May 26, 2005
June 27, 2005
July 26, 2005

Results: See Table 1 and Table 2.

Table 1. Effect of Temik 15G and Gaucho Grande on population development of the reniform nematode on DP 555 BGRR cotton.[1]

Treatment	Rate per acre[2]	Application method	*R. reniformis* / 500 cc soil at 0-158 days after planting					Mean[3]
			0	28	60	89	158	
Gaucho Grande 600 FS	12.8 fl oz / cwt seed	Seed treatment	2,890	1,600	2,786	3,870	2,890 a	2,807.17
Temik 15G	5 lb	In-furrow	2,374	2,012	2,528	5,005	2,940 a	2,971.88
Gaucho Grande 600 FS + Temik 15G	12.8 fl oz / cwt seed + 5 lb	Seed treatment + In-furrow	2,838	1,806	3,973	6,708	3,404 b	3,745.76
Gaucho Grande 600 FS + Temik 15G	12.8 fl oz / cwt seed + 5 lb	Seed treatment + Side dress	2,425	1,135	3,457	6,347	3,034 b	3,279.69
Temik 15G + Temik 15G	5 lb + 5 lb	In-furrow + Side dress	4,180	1,703	4,489	4,025	3,161 b	3,511.42
LSD (P=0.05)			NS	NS	NS	NS	444	NS

[1]Data are means of five replications. Means within a column not followed by the same letter are significantly different at the 0.05 level of significance according to the least significant difference test.
[2]Rates calculated are based on 38-inch row spacing.
[3]Average reniform nematode population density across sample dates.

Table 2. Effect of Temik 15G and Gaucho Grande on the yield of DP 555 BGRR cotton in a field infested with the reniform nematode.[1]

Treatment[2]	Rate per acre[3]	Application method	Seed cotton	Seed cotton	Yield over control
			lb/plot	*lb/A*	*lb/A*
Gaucho Grande 600 FS	12 fl oz / cwt seed	Seed treatment	16.80	2,890.3	0
Temik 15G	5 lb	In-furrow	17.09	3,972.1	1,081.8
Gaucho Grande 600 FS + Temik 15G	12.8 fl oz / cwt seed + 5 lb	Seed treatment + In-furrow	19.78	3,403.6	5,13.3
Gaucho Grande 600 FS + Temik 15G	12.8 fl oz / cwt seed + 5 lb	Seed treatment + Side dress	17.64	3,034.1	143.8
Temik 15G + Temik 15G	5 lb + 5 lb	In-furrow + Side dress	18.37	3,160.7	270.4
LSD (P=0.05)			NS	NS	

[1]Data are means of five replications. Means within a column not followed by the same letter are significantly different at the 0.05 level of probability according to the least significant difference test.
[2]Temik 15G was applied as a side-dress treatment on June 27, 2005.
[3]Rates calculated are based on 38-inch row spacing.

Reniform Nematode Management with Gaucho Grande, Temik 15G, and the Experimental Seed Treatments L1489A and Exp 60003B

Objective: Gaucho Grande, Temik 15G, and two experimental seed treatments were examined in Glen Alan, Mississippi, for the management of the reniform nematode (*Rotylenchulus reniformis*) in an established cotton production system.

Temik 15G was applied at planting in the seed furrow at 5 pounds per acre with a Case 900 Early Riser planter equipped with granular chemical applicators. . The seed treatments were applied to the seeds by Bayer CropScience.

All plots were treated with Orthene 75S at 4 ounces of formulated product per acre when thrips were detected in any plots.

Cultivar: DP 444 BR

Experimental design: Randomized complete block with five replications.

Plot design: Two-row plots; rows 40 feet long, 38 inches wide; blocks separated by a 20-foot alley.

Application date:

April 28, 2005	Temik 15G applied in-furrow
May 11, 2005	Orthene 75S applied to all treatments
May 18, 2004	Orthene 75S applied to all treatments

Planting date: May 28, 2005

Seed rate: 200 seeds per row

Nematode sample date:
April 28, 2005
May 26, 2005
June 27, 2005
July 26, 2005
October 4, 2005

Harvest date: October 4, 2005

Results: See Table 3 and Table 4.

Table 3. Effect of Temik 15G, Gaucho Grande, and L1489A, and Exp60003B seed treatments on population development of the reniform nematode on DP 444 BR cotton.[1]

Treatment	Rate per acre[2]	Application method	*R. reniformis* / 500 cc soil at 0-158 days after planting					Mean[3]
			0	28	60	89	158	
Untreated	—	—	2,976	2,374	3,560 ab	9,168	10,131a	5,642
Gaucho Grande 600 FS	500 ga/100 kg	Seed treatment	3,922	1,496	2,374 b	9,752	9,752 a	5,459
Gaucho Grande 600 FS + L1489A	500 ga/100 kg + 100 kg	Seed treatment	3,302	1,651	4,283 a	7,172	7,327 b	4,747
Gaucho Grande 600 FS + L1489A	500 ga/100 kg + 0.15 mg/100 kg	Seed treatment	2,786	2,528	5,573 a	8,720	7,482 b	5,418
Gaucho Grande 600 FS + Exp60003B	500 ga/100 kg + 500 ga/100 kg	Seed treatment	3,509	2,683	4,334 ab	8,566	9,959 b	5,810
Gaucho Grande 600 FS + Exp60003B	500 ga/100 kg + 700 ga/100 kg	Seed treatment	3,973	3,096	2,890 b	8,050	5,521 b	4,706
Temik 15G	5 lb	In-furrow	3,578	2,253	2,993 b	5,108	6,502 b	4,087
LSD (P=0.05)			NS	NS	2059	NS	444	NS

[1]Data are means of five replications. Means within a column not followed by the same letter are significantly different at the 0.05 level of significance according to the least significant difference test.
[2]Rates calculated are based on 38-inch row spacing.
[3] Average reniform nematode population density across sample dates.

Table 4. Effect of Temik 15G, Gaucho Grande 600 FS, and L1489A and Exp60003B seed treatments on the yield of DP 444 BR cotton in a field infested with the reniform nematode.[1]

Treatment	Rate per acre[2]	Application method	Seed cotton	Seed cotton	Yield over control
			lb/plot	*lb/A*	*lb/A*
Untreated	—	—	16.45	2,830.4	0
Gaucho Grande 600 FS	500 ga/100 kg	Seed treatment	17.98	3,093.9	263.5
Gaucho Grande 600 FS + L1489A	500 ga/100 kg + 100 kg	Seed treatment	17.11	2,944.3	113.9
Gaucho Grande 600 FS + L1489A	500 ga/100 kg + 0.15 mg/100 kg	Seed treatment	18.02	3,100.8	270.4
Gaucho Grande 600 FS + Exp60003B	500 ga/100 kg + 500 ga/100 kg	Seed treatment	17.55	3,019.6	189.2
Gaucho Grande 600 FS + Exp60003B	500 ga/100 kg + 700 ga/100 kg	Seed treatment	17.50	3,017.5	187.1
Temik 15G	5 lb	In-furrow	16.60	2,855.1	24.7
LSD (P=0.05)			NS	NS	

[1]Data are means of five replications. Means within a column not followed by the same letter are significantly different at the 0.05 level of probability according to the least significant difference test.
[2]Rates calculated are based on 38-inch row spacing.

Reniform Nematode Management with Temik 15G and the Experimental Nematicide KC 791230

Objective: Temik 15G and the experimental nematicide KC 791230 were examined in Glen Alan, Mississippi, for the management of the reniform nematode (*Rotylenchulus reniformis*) in an established cotton production system.

Temik 15G and KC791230 were applied at planting in the seed furrow or as a side-dress treatment to plants that were in the 10th true leaf growth stage. Temik 15G and KC 791230 were applied in-furrow at 5 and 7 pounds per acre. The side-dress treatment rates were 5 pounds per acre in combination with a 5 pounds per acre in-furrow rate applied at planting.

Temik 15G and KC 791230 in-furrow treatments were applied with a Case 900 Early Riser planter equipped with granular chemical applicators. Side-dress applications were placed approximately 6 inches deep on each side of the row with rolling coulters.

All plots were treated with Orthene 75S at 4 ounces of formulated product per acre when thrips were detected in any plots.

Cultivar: DP 555 BGRR

Experimental design: Randomized complete block with five replications.

Plot design: Two-row plots; rows 40 feet long, 38 inches wide; blocks separated by a 20-foot alley.

Application date:

May 28, 2005	Temik 15G and KC 791230 applied in-furrow
May 11, 2005	Orthene 75S applied to all treatments
May 18, 2005	Orthene 75S applied to all treatments
June 27, 2005	Temik 15G side-dress treatment

Planting date: May 28, 2005

Seed rate: 200 seeds per row

Nematode sample date:
April 28, 2005
May 26, 2005
June 27, 2005
July 26, 2005
October 4, 2005

Harvest date: October 4, 2005

Results: See Table 5 and Table 6.

Table 5. Effect of Temik 15G and the experimental nematicide KC 791230 on population development of the reniform nematode on DP 555 BR cotton.[1]

Treatment[2]	Rate per acre[3]	Application method	*R. reniformis* / 500 cc soil at 0-158 days after planting					Mean[4]
			0	28	60	89	158	
Untreated	—	—	2,838	2,374	1,737	6,897	8,256	4,420.4
Temik 15G	5 lb	In-furrow	2,270	2,116	2,116	8,824	7,224	4,509.8
KC 791230	5 lb	In-furrow	2,528	2,580	1,342	5,934	6,708	3,818.4
Temik 15G + Temik 15G	5 lb + 5 lb	In-furrow + Side dress	2,374	1,600	1,806	12,539	8,927	5,449.0
KC 791230 + KC 791230	5 lb + 5 lb	In-furrow + Side dress	2,580	2,219	2,632	6,605	9,804	4,767.8
Temik 15G	7 lb	In-furrow	2,356	2,683	1,548	8,411	7,946	4,588.9
KC 791230	7 lb	In-furrow	2,322	2,116	1,548	8,462	7,121	4,313.8
LSD (P=0.05)			NS	NS	NS	NS	NS	NS

[1]Data are means of five replications. Means within a column not followed by the same letter are significantly different at the 0.05 level of significance according to the least significant difference test.
[2]Temik 15G was applied as a side-dress treatment on June 27, 2005
[3]Rates calculated are based on 38-inch row spacing.
[4]Average reniform nematode population density across sample dates.

Table 6. Effect of Temik 15G and the experimental nematicide KC 791230 on seed cotton yield of DP 555BR in a field infested with the reniform nematode.[1]

Treatment	Rate per acre[2]	Application method	Seed cotton	Seed cotton	Yield over control
			lb/plot	*lb/A*	*lb/A*
Untreated	—	—	17.13	2,947.7	0
Temik 15G	5 lb	In-furrow	17.92	3,082.9	136.2
KC 791230	5 lb	In-furrow	18.39	3,164.1	217.4
Temik 15G + Temik 15G	5 lb + 5 lb	In-furrow + Side dress	17.09	2,939.8	-6.9
KC 791230 + KC 791230	5 lb + 5 lb	In-furrow + Side dress	17.92	3,082.9	136.2
Temik 15G	7 lb	In-furrow	17.01	2,926.0	-20.7
KC 791230	7 lb	In-furrow	17.74	3,051.3	104.6
LSD (P=0.05)			NS	NS	

[1]Data are means of five replications. Means within a column not followed by the same letter are significantly different at the 0.05 level of probability according to the least significant difference test.
[2]Rates calculated are based on 38-inch row spacing.

Effect of Avicta Complete Pac; Avicta Prepack Variants A, B, C, and D; and Temik 15G on the Management of the Reniform Nematode

Objective: Avicta Complete Pac; Avicta prepack variants A, B, C, and D; and Temik 15G were examined in Glen Allan, Mississippi, for the management of the reniform nematode (*Rotylenchulus reniformis*) in an established cotton production system.

Cottonseed of ST 4892 BG/RR was treated with Allegiance FL, 15 mg of active ingredient per seed; RTU Baytan-Thiram, 41 mg of active ingredient per seed; Cruiser 5 FS, 0.34 Mga per seed; and Dynasty CST 125 FS, 0.03 Mga per seed and/per or with 0.12 Mga of Abamectin per seed by Syngenta. Temik 15G was applied at planting in the seed furrow at a formulated rates of 5 pounds per acre.

Temik 15G was applied with a Case 900 Early Riser planter equipped with granular chemical applicators. All plants received a foliar spray of Orthene 75S at 4 ounces per acre when early-season insects were detected in any plot.

Cultivar: ST 4892 BG/RR

Experimental design: Randomized complete block with five replications.

Plot design: Two-row plots; rows 40 feet long, 38 inches wide; blocks separated by a 20-foot alley.

Application date:

April 28, 2005	Temik 15G applied in-furrow
May 11, 2005	Orthene 75S applied to all treatments
May 18, 2005	Orthene 75S applied to all treatments

Planting date: April 28, 2005

Seed rate: 200 seeds per row

Nematode sample date:
April 28, 2005
May 26, 2005
June 27, 2005
July 26, 2005
October 4, 2005

Plant height:
June 26, 2005
July 27, 2005

Plant nodes recorded:
June 26, 2005
July 27, 2005

Harvest date: October 4, 2005

Results: See Table 7, Table 8, and Table 9.

Table 7. Effect of Avicta Complete Pac and Avicta Prepack Variants on population development of the reniform nematode on ST 4892 BG/RR cotton.[1]

Treatment	Rate per acre[2]	Application method	*R. reniformis* / 500 cc soil at 0-158 days after planting					Mean[3]
			0	28	60	89	158	
Dynasty + Cruiser	32 g ai/100 kg + 0.34 g i/100 kg	Seed treatment	3,096	2,890	1,806 b	6,089	11,042	4,984.56
Dynasty + Cruiser + Avicta	32 g ai/100 kg + 0.34 g ai/100 kg + 0.15 mg ai/seed	Seed treatment	4,180	2,580	2,477 ab	5,160	9,959	4,871.04
Prepack Varient A	0.15 mg ai/seed	Seed treatment	3,664	1,806	2,580 ab	5,624	10,578	4,850.40
Prepack Varient B	0.15 mg ai/seed	Seed treatment	2,735	2,219	2,425 ab	6,295	10,836	4,902.00
Prepack Varient C	0.15 mg ai/seed	Seed treatment	1,909	2,064	1,754 b	4,541	12,694	4,592.40
Prepack Varient D	0.15 mg ai/seed	Seed treatment	2,786	2,425	4,489 a	6,760	10,991	5,490.24
Allegiance – FL + RTU Baytan-Thiram + Temik 15G	15 mg ai/seed + 41 mg ai/seed + 5 lb	Seed treatment Seed treatment In-furrow	2,683	1,909	2,166 b	7,018	11,455	5,036.16
Dynasty + Temik 15G	32 g ai/100 kg + 5 lb	Seed treatment In-furrow	3,199	1,754	1,238 b	6,863	8,720	4,355.04
LSD (P=0.05)			NS	NS	1788	NS	NS	NS

[1]Data are means of five replications. Means within a column not followed by the same letter are significantly different at the 0.05 level of significance according to the least significant difference test.
[2]Rates calculated are based on 38-inch row spacing.
[3]Nematodes averaged across the growing season.

Table 8. Effect of Avicta Complete Pac and Avicta Prepack Variants on the height and the number of nodes on ST 4892 BG/RR cotton at 28 and 60 days after planting.[1]

Treatment	Rate per acre[2]	Application method	Cotton height (cm)[3]		Nodes per cotton plant[3]	
			28 DAP	60 DAP	28 DAP	60 DAP
Dynasty + Cruiser	32 g ai/100 kg + 0.34 g ai/100 kg	Seed treatment	9.28	62.56	4.5	13.16
Dynasty + Cruiser + Avicta	32 g ai/100 kg + 0.34 g ai/100 kg + 0.15 mg ai/seed	Seed treatment	10.20	62.52	4.6	13.48
Prepack Varient A	0.15 mg ai/seed	Seed treatment	9.44	60.72	4.3	13.16
Prepack Varient B	0.15 mg ai/seed	Seed treatment	9.60	59.76	4.3	13.72
Prepack Varient C	0.15 mg ai/seed	Seed treatment	9.28	59.64	4.2	13.24
Prepack Varient D	0.15 mg ai/seed	Seed treatment	8.84	60.88	4.3	13.00
Allegiance – FL + RTU Baytan-Thiram + Temik 15G	15 mg ai/seed + 41 mg ai/seed + 5 lb	Seed treatment Seed treatment In-furrow	9.12	59.96	4.3	13.04
Dynasty + Temik 15G	32 g ai/100 kg + 5 lb	Seed treatment In-furrow	9.72	59.72	4.2	12.92
LSD (P=0.05)			NS	NS	NS	NS

[1]Data are means of five replications. Means within a column not followed by the same letter are significantly different at the 0.05 level of significance according to the least significant difference test.
[2]Rates calculated are based on 38-inch row spacing.
[3]Plant height and number of nodes were recorded on June 26 and July 27, 2005.

Table 9. Effect of Avicta Complete Pac and Prepack Variants on the yield of DP 444 BR cotton in a field infested with the reniform nematode.[1]

Treatment	Rate per acre[2]	Application method	Seed cotton	Seed cotton	Yield over control
			lb/plot	*lb/A*	*lb/A*
Dynasty + Cruiser	32 g ai/100 kg + 0.34 g ai/100 kg	Seed treatment	21.41 b	3,683.7 b	0
Dynasty + Cruiser + Avicta	32 g ai/100 kg + 0.34 g ai/100 kg + 0.15 mg ai/seed	Seed treatment	23.86 a	4,104.1 a	420.4
Prepack Varient A	0.15 mg ai/seed	Seed treatment	23.92 a	4,115.1 a	431.4
Prepack Varient B	0.15 mg ai/seed	Seed treatment	22.45 a	3,861.9 ab	178.2
Prepack Varient C	0.15 mg ai/seed	Seed treatment	22.44 a	3,860.5 ab	176.8
Prepack Varient D	0.15 mg ai/seed	Seed treatment	21.42 b	3,685.1 b	1.4
Allegiance – FL + RTU Baytan-Thiram + Temik 15G	15 mg ai/seed + 41 mg ai/seed + 5 lb	Seed treatment Seed treatment In-furrow	20.67 b	3,555.3 b	-128.4
Dynasty + Temik 15G	32 g ai/100 kg + 5 lb	Seed treatment In-furrow	21.11 b	3,632.1 b	-51.6
LSD (P=0.05)			1.61	278	

[1]Data are means of five replications. Means within a column not followed by the same letter are significantly different at the 0.05 level of probability according to the least significant difference test.
[2]Rates calculated are based on 38-inch row spacing.

Effect of Avicta Complete Pac and STP 15142 on Reniform Nematode Management

Objective: Avicta Complete Pac and Temik 15G were examined in Glen Allan, Mississippi, for the management of the reniform nematode (*Rotylenchulus reniformis*) in an established cotton production system.

Cottonseed of DP 555 BG/RR was treated with Cruiser 5 FS, 0.34 Mga per seed; and Dynasty CST 125 FS, 0.03 Mga per seed and/or with 0.12 Mga of Abamectin per seed by Syngenta. Temik 15G was applied at planting in the seed furrow at a formulated rates of 5 pounds per acre.

Temik 15G was applied with a Case 900 Early Riser planter equipped with granular chemical applicators. All plants received a foliar spray of Orthene 75S at 4 ounces per acre when early-season insects were detected in any plot.

Cultivar: ST 4892 BG/RR

Experimental design: Randomized complete block with five replications.

Plot design: Two-row plots; rows 40 feet long, 38 inches wide; blocks separated by a 20-foot alley.

Application date:

April 28, 2005	Temik 15G applied in-furrow
May 11, 2005	Orthene 75S applied to all treatments
May 18, 2005	Orthene 75S applied to all treatments

Planting date: April 28, 2005

Seed rate: 200 seeds per row

Nematode sample date:
April 28, 2005
May 26, 2005
June 27, 2005
July 26, 2005
October 4, 2005

Plant height:
June 26, 2005
July 27, 2005

Plant nodes recorded:
June 26, 2005
July 27, 2005

Harvest date: October 4, 2005

Results: See Table 10, Table 11, and Table 12.

Table 10. Effect of Dynasty, Cruiser, Avicta Complete Pac and the seed treatment STP 15142 on population development of the reniform nematode on ST 4892 BG/RR cotton.[1]

Treatment	Rate per acre[2]	Application method	*R. reniformis* / 500 cc soil at 0-158 days after planting					Mean[3]
			0	28	60	89	158	
Dynasty CST 125FS + Cruiser 5FS	0.03 mg ai/seed + 0.34 mg ai/seed	Seed treatment	2,889	3,457	2,993	9,357	9,030 c	5,545.3
Dynasty + Cruiser + Avicta	32 mg ai/seed + 0.34 mg ai/seed + 0.15 mg ai/seed	Seed treatment	2,477	1,806	2,374	6,089	17,355 a	6,020.0
Dynasty + Temik 15G	0.15 mg ai/seed + 3.5 lb	Seed treatment + In-furrow	2,064	1,479	1,858	9,082	14,964 ab	5,889.3
Dynasty + Temik 15G	0.15 mg ai/seed + 5 lb	Seed treatment + In-furrow	1,858	2,477	1,858	8,875	6,708 c	4,355.0
STP15142 + RTU-Baytan-Thirum 1.76 FS + Temik 15G	15 ga/100 kg seed + 41 ga/100 kg seed + 5 lb	Seed treatment + Seed treatment + In-furrow	3,199	2,270	2,477	10,217	9,907 bc	5,614.1
LSD (P=0.05)			NS	NS	NS	NS	5,100	NS

[1]Data are means of five replications. Means within a column not followed by the same letter are significantly different at the 0.05 level of significance according to the least significant difference test.
[2]Rates calculated are based on 38-inch row spacing.
[3]Nematodes averaged across the growing season.

Table 11. Effect of Dynasty, Cruiser, Avicta Complete Pac and the seed treatment STP 15142 on the height and the number of nodes on DP 555 BG/RR cotton at 28 and 60 days after planting.[1]

Treatment	Rate per acre	Application method	Cotton height (cm)[2]		Nodes per cotton plant[2]	
			28 DAP	60 DAP	28 DAP	60 DAP
Dynasty CST 125FS + Cruiser 5FS	0.03 mg ai/seed + 0.34 mg ai/seed	Seed treatment	8.92	61.80	4.8	13.60
Dynasty + Cruiser + Avicta	32 mg ai/seed + 0.34 mg ai/seed + 0.15 mg ai/seed	Seed treatment	9.20	61.07	4.3	13.27
Dynasty + Temik 15G	0.15 mg ai/seed + 3.5 lb	Seed treatment + In-furrow	8.56	60.92	4.4	13.28
Dynasty + Temik 15G	0.15 mg ai/seed + 5 lb	Seed treatment + In-furrow	8.74	62.22	4.6	13.72
STP15142 + RTU-Baytan-Thirum 1.76 FS + Temik 15G	15 ga/100 kg seed + 41 ga/100 kg seed + 5 lb	Seed treatment + Seed treatment + In-furrow	8.72	60.72	4.8	13.44
LSD (P=0.05)			NS	NS	NS	NS

[1]Data are means of five replications. Means within a column not followed by the same letter are significantly different at the 0.05 level of significance according to the least significant difference test.
[2]Plant height and number of nodes were recorded on June 26 and July 27, 2005

Table 12. Effect of Dynasty, Cruiser, Avicta Complete Pac, and the seed treatment STP 15142 on the yield of DP 555 BG/RR cotton in a field infested with the reniform nematode.[1]

Treatment	Rate per acre[2]	Application method	Seed cotton	Seed cotton	Yield over control
			lb/plot	*lb/A*	*lb/A*
Dynasty CST 125FS + Cruiser 5FS	0.03 mg ai/seed + 0.34 mg ai/seed	Seed treatment	15.96 c	2,745.7 c	0
Dynasty + Cruiser + Avicta	32 mg ai/seed + 0.34 mg ai/seed + 0.15 mg ai/seed	Seed treatment	18.49 a	3,181.3 a	435.6
Dynasty + Temik 15G	0.15 mg ai/seed + 3.5 lb	Seed treatment + In-furrow	18.02 ab	3,100.8 ab	355.1
Dynasty + Temik 15G8	0.15 mg ai/seed + 5 lb	Seed treatment + In-furrow	17.85 ab	3,070.5 ab	324.
STP15142 + RTU-Baytan-Thirum 1.76 FS + Temik 15G	15 ga/100 kg seed + 41 ga/100 kg seed + 5 lb	Seed treatment + Seed treatment + In-furrow	17.05 ab	2,932.9 ab	187.2
LSD (P=0.05)			1.56	268.7	

[1]Data are means of five replications. Means within a column not followed by the same letter are significantly different at the 0.05 level of probability according to the least significant difference test.
[2]Rates calculated are based on 38-inch row spacing.

Effect of Avicta Complete Pac, Temik 15G, and Vydate C-LV on the Management of the Reniform Nematode

Objective: Avicta Complete Pac, Temik 15G, and Vydate C-LV were examined in Glen Allan, Mississippi, for the management of the reniform nematode (*Rotylenchulus reniformis*) in an established cotton production system.

Cottonseed of DP 555 BG/RR was treated with Cruiser 5 FS, 0.34 Mga per seed; and Dynasty CST 125 FS, 0.03 Mga per seed and/or with 0.12 Mga of Abamectin per seed by Syngenta. Temik 15G was applied at planting in the seed furrow at a formulated rates of 5 pounds per acre.

Temik 15G was applied with a Case 900 Early Riser planter equipped with granular chemical applicators. All plants received a foliar spray of Orthene 75S at 4 ounces per acre when early-season insects were detected in any plot.

Vydate C-LV was applied as a foliar spray at the 6th true leaf stage and again 14 days later. Vydate C-LV was applied with a CO_2-charged backpack field plot spray system. A total volume of 10 gallons per acre was applied through two 8003 flat fan nozzles spaced over each row at 30 psi.

Cultivar: ST 4892 BG/RR

Experimental design: Randomized complete block with five replications.

Plot design: Two-row plots; rows 40 feet long, 38 inches wide; blocks separated by a 20-foot alley.

Application date:

April 28, 2005	Temik 15G applied in-furrow
May 11, 2005	Orthene 75S applied to all treatments
May 18, 2005	Orthene 75S applied to all treatments
June 18, 2005	Vydate C-LV applied to specific treatments
July 7, 2005	Vydate C-LV applied to specific treatments
July 9, 2005	Vydate C-LV applied to specific treatments

Planting date: April 28, 2005

Seed rate: 200 seeds per row

Nematode sample date:
April 28, 2005
May 26, 2005
June 27, 2005
July 26, 2005
October 4, 2005

Plant height:
June 26, 2005
July 27, 2005

Plant nodes recorded:
June 26, 2005
July 27, 2005

Harvest date: October 4, 2005

Results: See Table 13, Table 14, and Table 15.

Table 13. Effect of Avicta Complete Pac and Vydate C-LV on population development of the reniform nematode on DP 555 BG/RR cotton.[1]

Treatment[2]	Rate per acre[3]	Application method	*R. reniformis* / 500 cc soil at 0-158 days after planting					Mean[4]
			0	28	60	89	158	
Dynasty CST 125FS + Cruiser 5 FS	32 ga/100 kg seed + 0.34 mg A/seed	Seed treatment	2,043	1,806	452	3,612	2,637	2,109.9
Dynasty CST 125FS + Cruiser 5 FS + Avicta 4.17 FS	32 ga/100 kg seed + 0.34 mg A/seed + 0.15 mg A/seed	Seed treatment	2,301	2,129	1,226	3,806	2,962	2,484.3
Dynasty CST 125FS + Temik 15G	32 ga/100 kg seed + 5 lb	Seed treatment + In-furrow	3,161	2,451	710	7,353	2,938	3,322.3
Dynasty CST 125FS + Cruiser5 FS + Avicta 4.17 FS + Temik 15G	0.34 mg A/seed + 0.34 mg A/seed + 0.15 mg A/seed + 5 lb	Seed treatment + In-furrow	2,451	1,806	839	3,870	2,907	2,374.6
Dynasty CST 125FS + Temik 15G + Temik 15G	32 ga/100 kg seed + 5 lb + 5 lb	Seed treatment + In-furrow + In-furrow	3,483	1,935	1,032	5,805	2,920	3,035.1
Dynasty CST 125FS + Cruiser 5 FS + Avicta 4.17 FS + Vydate C-LV	32 ga/100 kg seed + 0.34 mg A/seed + 0.15 mg A/seed + 8.5 oz	Seed treatment + 6th true leaf + 14 days	2,344	1,097	387	3,548	2,972	2,069.3
Dynasty CST 125FS + Cruiser 5 FS + Temik 15G + Vydate C-LV	32 ga/100 kg seed + 0.34 mg A/seed + 3.5 lb + 8.5 oz	Seed treatment + In-furrow + 6th true leaf + 14 days	3,806	2,129	323	4,515	3,012	2,756.6
Dynasty CST 125FS + Cruiser + Vydate C-LV	32 ga/100 kg seed + 0.34 mg A/seed + 17 oz	Seed treatment + 6th true leaf + 14 days	2,903	1,677	645	4,193	3,015	2,486.4
Dynasty CST 125FS + Cruiser 5 FS + Avicta 4.17 FS + Vydate C-LV	32 ga/100 kg seed + 0.34 mg A/seed + 0.15 mg A/seed + 8.5 oz	Seed treatment + 6th true leaf + 14 days	2,903	1,613	516	4,816	3,027	2,574.8
Dynasty CST 125FS + Cruiser 5 FS + Avicta 4.17 FS + Vydate C-LV	32 ga/100 kg seed + 0.34 mg A/seed + 0.15 mg A/seed + 11 oz	Seed treatment + 6th true leaf + 14 days	2,903	1,484	710	6,192	3,092	2,876
Dynasty CST 125FS + Cruiser 5 FS + Avicta 4.17 FS + Vydate C-LV	32 ga/100 kg seed + 0.34 mg A/seed + 0.15 mg A/seed + 16 oz	Seed treatment + 6th true leaf	2,580	1,405	774	4,494	2,993	2,639.5
Dynasty CST 125FS + Temik 15G + Vydate C-LV	32 ga/100 kg seed + 3.5 lb + 8.5 oz	Seed treatment + In-furrow + 6th true leaf + 14 days	3,419	1,649	1,161	5,160	3,126	2,851.4
Dynasty CST 125FS + Temik 15G	32 ga/100 kg seed + 3.5 lb	Seed treatment + In-furrow	3,357	1,871	839	3,462	2,857	2,476.2
LSD (P=0.05)			NS	NS	NS	NS	NS	NS

[1]Data are means of five replications. Means within a column not followed by the same letter are significantly different at the 0.05 level of significance according to the least significant difference test.
[2]Vydate C-LV was applied at the 2nd, 5th, and 6th true leaf stage on June 18, July 7, and July 9, respectively.
[3]Rates calculated are based on 38-inch row spacing.
[4]Nematodes averaged across the growing season.

Table 14. Effect of Avicta Complete Pac and Vydate C-LV on the height and the number of nodes on DP 555 BG/RR cotton at 28 and 60 days after planting.[1]

Treatment	Rate per acre[2]	Application method	Cotton height (cm)[3]		Nodes per cotton plant[3]	
			28 DAP	60 DAP	28 DAP	60 DAP
Dynasty CST 125FS + Cruiser 5 FS	32 ga/100 kg seed + 0.34 mg A/seed	Seed treatment	8.85	67.45	4.9	14.15
Dynasty CST 125FS + Cruiser 5 FS + Avicta 4.17 FS	32 ga/100 kg seed + 0.34 mg A/seed + 0.15 mg A/seed	Seed treatment	8.45	62.15	4.8	13.80
Dynasty CST 125FS + Temik 15G	32 ga/100 kg seed + 5 lb	Seed treatment + In-furrow	8.75	67.80	4.9	14.15
Dynasty CST 125FS + Cruiser5 FS + Avicta 4.17 FS + Temik 15G	0.34 mg A/seed + 0.34 mg A/seed + 0.15 mg A/seed + 5 lb	Seed treatment + In-furrow	9.40	65.95	5.0	13.85
Dynasty CST 125FS + Temik 15G + Temik 15G	32 ga/100 kg seed + 5 lb + 5 lb	Seed treatment + In-furrow + In-furrow	8.95	65.45	4.9	14.10
Dynasty CST 125FS + Cruiser 5 FS + Avicta 4.17 FS + Vydate C-LV	32 ga/100 kg seed + 0.34 mg A/seed + 0.15 mg A/seed + 8.5 oz	Seed treatment + 6th true leaf + 14 days	8.90	65.80	4.7	14.45
Dynasty CST 125FS + Cruiser 5 FS + Temik 15G + Vydate C-LV	32 ga/100 kg seed + 0.34 mg A/seed + 3.5 lb + 8.5 oz	Seed treatment + In-furrow + 6th true leaf + 14 days	8.50	59.90	4.9	13.75
Dynasty CST 125FS + Cruiser 5 FS + Vydate C-LV	32 ga/100 kg seed + 0.34 mg A/seed + 17 oz	Seed treatment + 6th true leaf + 14 days	9.15	65.75	4.8	13.90
Dynasty CST 125FS + Cruiser 5 FS + Avicta 4.17 FS + Vydate C-LV	32 ga/100 kg seed + 0.34 mg A/seed + 0.15 mg A/seed + 8.5 oz	Seed treatment + 6th true leaf + 14 days	8.85	65.60	5.0	13.95
Dynasty CST 125FS + Cruiser 5 FS + Avicta 4.17 FS + Vydate C-LV	32 ga/100 kg seed + 0.34 mg A/seed + 0.15 mg A/seed + 11 oz	Seed treatment + 6th true leaf + 14 days	9.75	63.75	4.7	13.70
Dynasty CST 125FS + Cruiser 5 FS + Avicta 4.17 FS + Vydate C-LV	32 ga/100 kg seed + 0.34 mg A/seed + 0.15 mg A/seed + 16 oz	Seed treatment + 6th true leaf	8.80	62.45	4.7	13.80
Dynasty CST 125FS + Temik 15G + Vydate C-LV	32 ga/100 kg seed + 3.5 lb + 8.5 oz	Seed treatment + In-furrow + 6th true leaf + 14 days	8.15	63.40	4.6	13.60
Dynasty CST 125FS + Temik 15G	32 ga/100 kg seed + 3.5 lb	Seed treatment + In-furrow	9.00	60.30	4.7	14.05
LSD (P=0.05)			NS	NS	NS	NS

[1]Data are means of five replications. Means within a column not followed by the same letter are significantly different at the 0.05 level of significance according to the least significant difference test.
[2]Vydate C-LV was applied at the 2nd, 5th, and 6th true leaf stages on June 18, July 7, and July 9, respectively.
[3]Plant height and number of nodes were recorded on June 26 and July 27, 2005.

Table 15. Effect of Avicta Complete Pac and Vydate C-LV on the yield of DP 555 BG/RR cotton in a field infested with the reniform nematode.[1]

Treatment[2]	Rate per acre[3]	Application method	Seed cotton	Seed cotton	Yield over control
			lb/plot	*lb/A*	*lb/A*
Dynasty CST 125FS + Cruiser 5 FS	32 ga/100 kg seed + 0.34 mg A/seed	Seed treatment	15.33	2,637.34	0
Dynasty CST 125FS + Cruiser 5 FS + Avicta 4.17 FS	32 ga/100 kg seed + 0.34 mg A/seed + 0.15 mg A/seed	Seed treatment	17.21	2,961.63	324.29
Dynasty CST 125FS + Temik 15G	32 ga/100 kg seed + 5 lb	Seed treatment + In-furrow	17.08	2,937.55	300.21
Dynasty CST 125FS + Cruiser5 FS + Avicta 4.17 FS + Temik 15G	0.34 mg A/seed + 0.34 mg A/seed + 0.15 mg A/seed + 5 lb	Seed treatment + In-furrow	16.90	2,907.44	270.10
Dynasty CST 125FS + Temik 15G + Temik 15G	32 ga/100 kg seed + 5 lb + 5 lb	Seed treatment + In-furrow + In-furrow	16.98	2,920.34	283.00
Dynasty CST 125FS + Cruiser 5 FS + Avicta 4.17 FS + Vydate C-LV	32 ga/100 kg seed + 0.34 mg A/seed + 0.15 mg A/seed + 8.5 oz	Seed treatment + 6th true leaf + 14 days	17.28	2,971.96	334.62
Dynasty CST 125FS + Cruiser 5 FS + Temik 15G + Vydate C-LV	32 ga/100 kg seed + 0.34 mg A/seed + 3.5 lb + 8.5 oz	Seed treatment + In-furrow + 6th true leaf + 14 days	17.50	3,011.52	374.18
Dynasty CST 125FS + Cruiser 5 FS + Vydate C-LV	32 ga/100 kg seed + 0.34 mg A/seed + 17 oz	Seed treatment + 6th true leaf + 14 days	17.53	3,014.96	377.62
Dynasty CST 125FS + Cruiser 5 FS + Avicta 4.17 FS + Vydate C-LV	32 ga/100 kg seed + 0.34 mg A/seed + 0.15 mg A/seed + 8.5 oz	Seed treatment + 6th true leaf + 14 days	17.60	3,027.01	389.67
Dynasty CST 125FS + Cruiser 5 FS + Avicta 4.17 FS + Vydate C-LV	32 ga/100 kg seed + 0.34 mg A/seed + 0.15 mg A/seed + 11 oz	Seed treatment + 6th true leaf + 14 days	17.98	3,092.38	455.04
Dynasty CST 125FS + Cruiser 5 FS + Avicta 4.17 FS + Vydate C-LV	32 ga/100 kg seed + 0.34 mg A/seed + 0.15 mg A/seed + 16 oz	Seed treatment + 6th true leaf	17.40	2,992.60	355.26
Dynasty CST 125FS + Temik 15G + Vydate C-LV	32 ga/100 kg seed + 3.5 lb + 8.5 oz	Seed treatment + In-furrow + 6th true leaf + 14 days	18.17	3,125.93	488.59
Dynasty CST 125FS + Temik 15G	32 ga/100 kg seed + 3.5 lb	Seed treatment + In-furrow	16.61	2,856.69	219.35
LSD (P=0.05)			NS	NS	

[1]Data are means of five replications. Means within a column not followed by the same letter are significantly different at the 0.05 level of probability according to the least significant difference test.
[2]Vydate C-LV was applied at the 2nd, 5th, and 6th true leaf stage on June 18, July 7, and July 9, respectively.
[3]Rates calculated are based on 38-inch row spacing.

Effect of Visible, Avicta Complete Pac, N-Hibit, Taps, Temik 15G, and Worm Tea on the Growth of Cotton in a Reniform-Nematode-Infested Field

Objective: Visible, Avicta Complete Pac, N-Hibit, Taps, Temik 15G and Earthworm Tea were examined for their effects on cotton growth, reniform population development, and subsequent yields in Glen Alan, Mississippi. The objectives of this test were to determine if the enhanced root and plant growth provided by these materials would benefit cotton production when used in the presence of the reniform nematode.

The test was conducted in an established cotton production location and naturally infested with the reniform nematode (*Rotylenchulus reniformis*). The enhanced growth effects were compared with an at-planting application of Temik 15G at 5 pounds of formulated product per acre. Visible granular was applied at 5 pounds per acre. Taps was applied in the seed furrow at a rate of 20 gallons per acre, and N-Hibit was used as a seed treatment at a rate of 3 ounces per hundredweight. The insecticide Di-Syston 8EC was included as an insecticide treatment with the control at 1 pound of active ingredient per acre. Orthene 75S was applied at 4 ounces of formulated product per acre when thrips were detected in any plots.

Temik 15G and the granular formulation of Visible were applied at planting with a Case 900 Early Riser planter equipped with granular applicators. Taps was applied in the seed furrow with a single flat fan 8003 nozzle positioned in front of the seed furrow closing disk. The earthworm tea was applied as a soil drench calibrated to deliver 20 gallons per acre with a CO_2-charged backpack field plot spray system.

Cultivar: DP 555 BG/RR

Experimental design: Randomized complete block with five replications.

Plot design: Two-row plots with two row borders; rows 40 feet long, 38 inches wide; blocks separated by a 20-foot alley.

Application date:

April 28, 2005	Visible applied in-furrow
	Temik 15G applied in-furrow
	Avicta-Complete-Pac-treated seed planted
	N-Hibit-treated seed planted
	Taps applied in-furrow
May 18, 2005	Orthene 75S applied to all treatments
May 21, 2005	Orthene 75S applied to all treatments
June 18, 2005	Worm Tea soil drench

Planting date: April 28, 2005

Seed rate: 200 seeds per row

Nematode sample date:
April 28, 2005
May 26, 2005
June 27, 2005
July 26, 2005
October 4, 2005

Harvest date: October 4, 2005

Results: See Table 16 and Table 17.

Table 16. Effect of Avicta Complete Pac, Temik 15G, and the nontoxic Visible, Worm Tea, N-Hibit, and Taps on population development of the reniform nematode on DP 555 BG/RR cotton.[1]

Treatment	Rate per acre[2]	Application method	*R. reniformis* / 500 cc soil at 0-158 days after planting					Mean[3]
			0	28	60	89	158	
Dynasty CST 125FS + Cruiser 5 FS	32 ga/100 kg seed + 0.34 mg A/seed	Seed treatment	3,234	2,133	1,548	6,450	4,231	3,516
Visible	5 lb	In-furrow	3,251	2,374	2,941	5,005	8,961	4,506
Visible + Avicta Complete Pac	5 lb + 0.15 mg A/seed	In-furrow + Seed treatment	3,096	1,961	1,700	3,767	6,502	3,385
Worm Tea	20 gal	Drench 6th true leaf	3,251	1,703	1,548	6,811	7,379	4,138
Dynasty CST 125FS + Cruiser 5 FS + Avicta 4.17 FS	32 ga/100 kg seed + 0.34 mg A/seed + 0.15 mg A/seed	Seed treatment	3,973	3,354	1,909	4,128	7,224	4,118
TAPS	20 gal	In-furrow	2,838	2,477	1,496	3,715	7,895	3,684
N-Hibit	3 oz wt/cwt	Seed treatment	3,302	2,374	1,290	5,005	6,037	3,602
Temik 15G	5 lb	In-furrow	2,167	2,064	413	22,446	4,799	6,378
Dynasty CST 125FS + Cruiser 5 FS + Avicta 4.17 FS + Temik 15G	32 ga/100 kg seed + 0.34 mg A/seed + 0.15 mg A/seed + 5 lb	Seed treatment + In-furrow	2,632	2,374	1,084	6,708	4,644	3,488
LSD (P=0.05)			NS	NS	NS	NS	NS	NS

[1]Data are means of five replications. Means within a column not followed by the same letter are significantly different at the 0.05 level of significance according to the least significant difference test.
[2]Rates calculated are based on 38-inch row spacing.
[3]Nematodes averaged across the growing season.

Table 17. Effect of Avicta Complete Pac, Temik 15G, and the nontoxic Visible, Worm Tea, N-Hibit, and Taps on the yield of DP 555 BG/RR cotton in a field infested with the reniform nematode.[1]

Treatment	Rate per acre[2]	Application method	Seed cotton	Seed cotton	Yield over control
			lb/plot	*lb/A*	*lb/A*
Dynasty CST 125FS + Cruiser 5 FS	32 ga/100 kg seed + 0.34 mg A/seed	Seed treatment	15.23 bc	2,632.96 d	0
Visible	5 lb	In-furrow	15.69 bc	2,712.47 cd	79.51
Visible + Avicta Complete Pac	5 lb + 0.15 mg A/seed	In-furrow Seed treatment	15.43 bc	2,667.53 d	34.57
Worm Tea	20 gal	Drench 6th true leaf	15.51 c	2,578.34 d	-54.62
Dynasty CST 125FS + Cruiser 5 FS + Avicta 4.17 FS	32 ga/100 kg seed + 0.34 mg A/seed + 0.15 mg A/seed	Seed treatment	17.69 a	3,058.19 a	425.23
TAPS	20 gal	In-furrow	15.10 bc	2,610.14 d	-22.82
N-Hibit	3 oz wt/cwt		15.45 bc	2,669.95 d	36.99
Temik 15G	5 lb		16.73 abc	2,892.25 abc	259.29
Dynasty CST 125FS + Cruiser 5 FS + Avicta 4.17 FS +Temik 15G	32 ga/100 kg seed + 0.34 mg A/seed + 0.15 mg A/seed + 5 lb	Seed treatment + In-furrow	16.94 ab	2,928.89 ab	295.93
LSD (P=0.05)			17.40	191.5	

[1]Data are means of five replications. Means within a column not followed by the same letter are significantly different at the 0.05 level of probability according to the least significant difference test.
[2]Rates calculated are based on 38-inch row spacing.

Appendix Table 1. List of chemicals used in the nematode management studies for 2005.

Trade name	Formulation	Company	Common name	Scientific description
Avicta Complete Pac	—	Syngenta	Abamectin	*Streptomyces avermitilis*
Di-Syston	8EC	Bayer Corporation	Disulfoton	*O, O*-Diethyl S-[2-(ethylthio)ethyl] phosphordodithioate
Cruiser	5 FS	Syngenta	Thiamethoxam	
Telone II	—	Dow AgriSciences	—	1, 3-dichloropropene
Temik	15G	Rhone-Poulenc	Aldicarb	[2-methyl-2-(methylthio) propionaldehyde O-(methyl carbamoy)oxime]
Orthene	75S	Valent	Acephate	O, S-Dimethyl acetyl phosphoramidothioate
Vydate	C-LV	DuPont	Oxamyl	[Methyl N'N'-dimethyl-N-[(methyl carbamoy)oxy] -1-thioxamimidate]
Worm Tea	—	Church Hill Worm Farm	—	Leachates from Worm Castings
Visible	—	AgTime Company, Inc.	—	Secondary Alcohol ethoxylates
Jenner-8 Plus	—	The Catalyst Product Group	—	Carbon Rich, Liquid Humic/Fulvic Acid
Di-Syston	8EC	Bayer Corporation	Disulfoton	*O, O*-Diethyl S-[2-(ethylthio)ethyl] phosphordodithioate
Vapam	HL	AMVAC	—	Sodium methyl dithiocarbamate (anhydrous)
KC791230	—	Bayer	—	Unknown
Gaucho	600	Bayer	Imidacloprid	1-[(6-Chloro-3-pyridinyl) methyl]-N-nitro-2-imidazdidinimine

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